CLAIMS

1. High capacity spool with built-in balloon control head (1) and folding system characterised:

   in that the high capacity spool includes:

   (a) a cylindrical tube (2) that forms the central part of the spool,

   (b) a balloon control head (1) built into the spool, which closes the upper part of the tube (2), and

   (c) a spool base (3) attached to the lower part of the tube (2).

   and in that said high capacity spool with built-in balloon control head (1) uses a thread folding system with two distinguishable stages, making a thread cone (7) in the first stage (18) and completing the filling of the spool in the second stage (8) while using the thread cone (7) built in the first stage (18) as support, the two stages being consecutive in time.

2. High capacity spool with built-in balloon control head (1) and folding system according to the first claim, characterised in that the balloon control head (1) has between 1 and 250 shoulders (4) and a minimum diameter equal to the diameter of the central tube (2) of the spool and a maximum diameter 100 millimetres larger than the diameter (11) of the central tube (2), the choice of the diameter of the balloon control head (1), and of the number of shoulders (4) and their design depending on the type of material to be spun or twisted and on the process carried out in order to make the tension of the thread or yarn increase throughout the process until said tension and the shape of the shoulder (4) let the thread jump so as to be pulled by another shoulder (4) under the same conditions, as the tension decreases suddenly at that instant and then slowly increases again until the thread jump is repeated again, the frequency of these thread or yarn jumps to the following shoulder (4) depending on the number and shape of the shoulders (4), on the size of the thread or yarn, the traveller (20) and the distance between the thread guide (5) and the balloon control head (1), said distance being between (inner diameter of the ring (19) of the machine) / 50, and (inner diameter of the ring (19) of the machine) / 2, and the balloon control head (1) being preferably made of plastic or aluminium.

3. High capacity spool with built-in balloon control head (1) and folding system according to the first claim, characterised in that the central tube (2) of the spool has a diameter (11) of between (inner diameter of the ring (19) of the machine the process is carried out on) / 5, and (inner diameter of the ring (19) of the machine the process is carried out on) / 2, and said central tube (2) of the spool has a height that is the sum of the set maximum folding height h (13) of the thread spool, which can vary between 100 and 1500 mm, and the height of the empty space h1 (12), whose value is between the values (diameter of the ring (19)) / 10, and (diameter of the ring (19)) * 1.5, the central tube (2) of the spool being preferably made of plastic or aluminium.

4. High capacity spool with built-in balloon control head (1) and folding system according to the first claim, characterised in that the base (3) of the spool has a diameter D (24) smaller than the inner diameter of the ring (19) of the machine on which the process of spinning or twisting is carried out on by a value of between 5 and 40 millimetres, said base (3) being preferably made of plastic or aluminium.

5. High capacity spool with built-in balloon control head (1) and folding system according to the first claim, characterised in that the folding system is carried out in two stages:

   (a) the first stage (18) is to make a cone of thread (7) using a method of arranging the layers that utilises a constant winding advance parameter A (17), with a set value of between 0.001 and 20 millimetres, and a parameter C (16) called conical, with a set value of between 1 and 1500 millimetres, which is increased or decreased according to the mode of layer arrangement chosen.

   (b) The second stage (8) of making the spool, in which the conical parameter C (16) value is set at its maximum value, the total ascendant vertical movement being the sum of the values of parameters A (17) and C (16), while the descendant vertical movement is tha value of the conical parameter C (16).